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NOTES FROM THE THROAT DEPARTMENT OF THE PATHOLOGICAL
LABORATORY OF THE MANHATTAN
EYE AND EAR HOSPITAL.¹

- (a) A RAPIDLY RECURRING BLEEDING POLYP OF THE SEPTUM NASI APPEARING TWICE IN A WOMAN, EACH TIME AT THE SEVENTH MONTH OF PREGNANCY.
- (b) PAPILLARY ADENOMATOUS HYPERTROPHY OF THE MUCOUS MEMBRANE OF THE SEPTUM.
- (c) A CYST IN THE LYMPHOID TISSUE OF THE PHARYNX.
- (d) EFFUSION OF SERUM INTO THE NASAL MUCOSA IN CORYZA.

WITH REMARKS ON THE RELATION OF THESE LESIONS TO OTHER MORBID
CONDITIONS OF THE NOSE AND THROAT.

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AN experience with such work extending over many years has long impressed me, and with an ever-increasing sense of its importance, with the great desirability that, connected with every large nose and throat clinic, a laboratory should be established in which all tissues removed from the patients should be systematically examined under the microscope. This should be done by a person thoroughly familiar with all the clinical problems presented by the histories, which in each case should accompany the specimen. Very meagre results are to be expected from the perfunctory examination of such material by a laboratory recluse. He should be in constant and thorough touch not only with all the phases of the morphological appearances of the tissue, but

¹ Read before the Laryngological Section of the New York Academy of Medicine, March 25, 1903.

with the clinical phenomena which accompany them. The endeavors of two sets of men, each only familiar with the clinical or the pathological side, however conscientious and earnest may be their labors, will always be, and have of necessity always been, markedly devoid of practical results in the advancement of our knowledge of the diseases of the nose and throat.

One tendency which is to be noted in all such work retards very much the elucidation of many of the most important problems we have to deal with, and that is the tendency to preserve for examination only the tissue from strange and unusual or doubtful cases, many laboring under the sad delusion that a malignant growth must of necessity furnish the most interesting tissue possible to the microscopist for study. Now, nothing can be more erroneous. In the study of the diseases which affect special regions of the body the examination of malignant growths microscopically is only of subsidiary interest. The problems connected with these belong more properly in the domain of general pathology. To a less extent this is true of the other two so-called "grand processes," syphilis and tuberculosis. The careful study of the common inflammatory processes and the connection of these with the benign growths is of very much greater importance. So multifarious are the appearances that, as is the case with the human physiognomy, no two specimens, no two sections, are exactly alike. Hardly any two pieces of tissue give the same reaction to reagents. Nay, more; one may almost say that hardly any two microscopic fields present the same appearance. This latter is especially true if we except the lymphoid tissue, whose hypertrophy presents more uniform pictures, due to the greater homogeneity and regularity of the tissue, the slight changes to be observed from the normal, and the few elements involved. To the clinician anxious to know whether he has to do with cancer, syphilis, or tuberculosis of the nose or throat, the differentiation possible by the microscope is of the greatest importance and interest; but in studying the gradations between the different phases of manifest chronic inflammations and the more problematical steps to a papilloma or a fibroma this is of little service. The comparison of the appearances in a hypertrophic and an atrophic rhinitis and the study of their identical tissue changes is, in the present state of our positive knowledge, of much greater importance. The only way to arrive at a solution of many of these problems is by the patient and repeated study of every bit of tissue removed from the nose and throat in the routine of the clinic.

As an excuse for bringing before you to-night much repetition of what I have said on former occasions, I may plead the continuity of work along the same lines carried on for many years. As time has gone on new experiences have added somewhat to the links of the con-

tinuous chain which binds together many apparently dissimilar processes. To exhibit these properly it is necessary to repeat much which may appear old to you, in order to say only a little which may be new to any of you. It is otherwise impossible to make any advance in our knowledge of the correlation of morbid processes and their connection with normal conditions. After all, it is rather egregious vanity than commendable modesty to assume that what one has formerly said or written has not been forgotten. As to the continuous chain I have alluded to, it will, of course, be understood there are many links still missing. It will also be understood that there is very little, indeed, I have to offer you to-night which has not been presented by others.

(a) A RAPIDLY RECURRING "BLEEDING POLYP" OF THE SEPTUM NASI APPEARING TWICE IN A WOMAN, EACH TIME AT THE SEVENTH MONTH OF PREGNANCY.

These growths are to be classed among the angiomas. There is no special reason for the classification of them in a separate category as bleeding polypi, a term which was inaugurated ten years ago by Schade-waldt, Alexander, Scheier and others.¹

I find on looking at my records I have examined eight of these histologically. Any growth of the septum, benign or malignant, is usually very vascular—*e. g.*, the sarcomata—and one is frequently at a loss to be sure that the round-celled infiltration, which is always a prominent feature in such a growth as I show you to-night, does not warrant the diagnosis of small round-celled sarcoma. The subsequent clinical history is the only sure criterion, and frequent recurrences often cause the observer much anxiety as to the ultimate outcome.

A great deal of work has been done to illustrate the connection, both anatomically and clinically, between the erectile tissue of the sexual organs and that of the nose. As a very singular instance of it, I may report this case, which has been under my observation for a few years, in which a bleeding polyp appeared repeatedly in the nose of a woman at the seventh month of pregnancy:

A woman, aged twenty-five years, came to the Brooklyn Eye and Ear Hospital on September 17, 1901, with a history of the septum having been burned several years previously for obstruction. From this there resulted a perforation. She had since been married and was then seven months pregnant. Springing from the perforation in the septum was a round, vascular-looking growth attached to the inferior and posterior edge of it. It rapidly recurred after extirpation, and on examination at that time showed nothing but very vascular granulation tissue. Recurrence a second time was larger than ever. It was then more radically removed, bits of underlying cartilage being cut away with it. That specimen showed some disordered cell structure and was richer in blood-

¹ Archiv. für Laryngologie, Band i. p. 259 et seq.

vessels than the tissue at the first examination. It was supposed to be an ordinary bleeding polypus of the septum.

About one year later (November 26, 1902) the woman again came with the history that the growth had not recurred noticeably after the last removal, shortly followed by the delivery of her child, born at full term and healthy, nor did she notice any discomfort until she had again become seven months pregnant, when she returned with recurrence of the growth, which now sprang chiefly from the inferior border of the perforation. It was of almost exactly the same appearance as the previous ones. This was removed and rapidly recurred. On December 17, 1902, it was again removed, and Fig. 1 represents the histological appearances.

FIG. 1.



The microscopic appearances of a "bleeding polyp" of the septum, recurring twice at the seventh month of pregnancy. Photograph $\times 10$ (retouched).

On microscopic examination the tissue is seen to be covered by degenerated flat epithelial cells, under which there is a layer of what appears to be hyaline degeneration of the connective tissue. The mass of the growth is made up of loose cedematous connective tissue in which there are a large number of mononuclear round cells which take the hæmatoxylin stain very deeply, and the whole growth is traversed by very numerous capillaries lined by a single layer of endothelium whose nuclei are very much swollen and project into the lumina of the blood-vessels. There is every evidence of considerable inflammatory action, but no proof of the malignant nature of the growth.¹

Whatever the subsequent history of the case may be, the rapidity with which this vascular growth recurred during pregnancy and its

¹ Since this paper was written this patient has been seen several times, first about three weeks after delivery. The growth was then the size of a pea. A month later it was the size of a grain of wheat, and a third time, still diminishing. Apparently, therefore, the growth had already recurred and grown to considerable dimensions in the two months elapsing between the last removal and the birth of her last child, and in the two months which had succeeded delivery it was as rapidly disappearing.

quiescence or absence at other times is, in view of the previous literature, interesting to say the least. The coincidence of the appearance of this growth and its repeated recurrence at the seventh month of pregnancy is one of the clinical facts which, though they cannot be very lucidly accounted for, nevertheless, taken in the aggregate, point to a more or less important relationship between the nasal and the genital mucosa. In another publication I have shown the anatomical differences in the nasal erectile tissue of the bull and the steer.¹

From anatomical as well as from pathological and physiological facts we know there is a more or less indefinite sympathy between the erectile tissue of the nose and the genitalia. In order to elaborate some considerations connected with this subject, I will quote rather extensively from some work I published seven or eight years ago:²

"In the erectile tissue of the nose the larger arterioles well supplied with muscular coats lie in the deepest layers of the mucous membrane close to the bone. They give off branches which supply, by a network of capillaries, the periosteum, the glands, and the epithelial layer of the mucous membrane. These capillaries are collected into the veins, which dilate into venous sinuses, the larger lacunæ of which are the deeper, the superficial lacunæ or "cortical network" communicating with them. These lacunæ again empty into the veins which accompany the primary arterioles into the periosteal layer.

"Zuckerkindl says he has never seen the arteries emptying directly into the venous sinuses. The same was said for a long time of the corpus cavernosum of the penis, but they were finally conclusively shown to do so, and I am not convinced that this does not occasionally take place in the erectile bodies of the nasal mucous membrane, though I have thus far been unable to trace the connection between the two.

"The capillaries, usually at least, do not empty directly into the venous sinuses nor into the radical veins accompanying the arteries. They are usually seen collected first into veins. The smaller veins of the periosteal layer empty directly into the radical veins accompanying the arterioles.

"Nevertheless, by comparing all these different conditions the probable mechanism of the blood-supply in the highly evolved nasal mucous membrane of man becomes pretty evident. The radical arteries and veins pass through various bony canals into the nose, as the large sphenopalatine foramen and smaller foramina in the ethmoid. The artery will evidently compress, when dilated, its accompanying vein against the bony walls, thus letting in more blood and limiting the outflow.

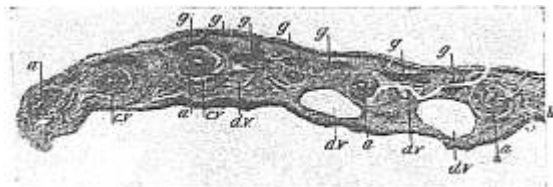
¹ New York Medical Journal, November 19, 1898.

² A Consideration of the Vascular Mechanism of the Nasal Mucous Membrane and its Relations to Certain Pathological Processes. THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, May, 1895.

Contraction of the artery acts in the inverse sense. This arrangement has been described for the blood-supply of the marrow of the long bones.

"There is a similar mechanism, as the arterial branches with their veins lie in the deep or periosteal layer of the mucous membrane. Fig.

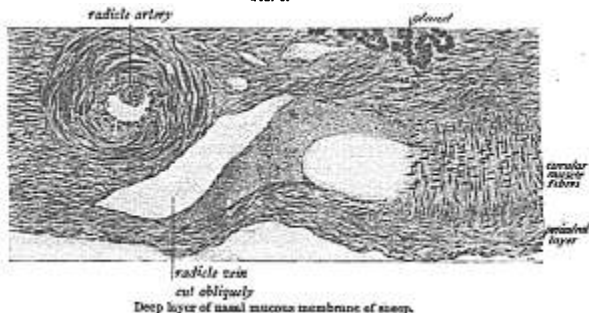
FIG. 2.



Nasal mucous membrane of sheep. *a*, artery. *b*, periosteal layer. *g*, gland. *d.v.*, dilated vein. *c.v.*, closed vein.

2 and Fig. 3 show very clearly how this occurs in the sheep. You will observe that many of the large veins lie between the very muscular arteries and the firm periosteum at the level of this particular section. Of the thirty or forty sections examined, this arrangement was evident

FIG. 3.

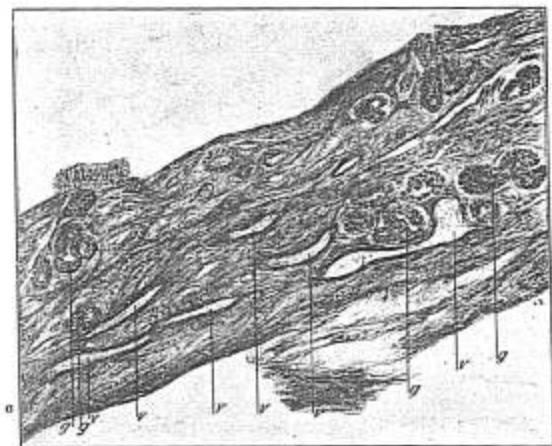


in so many pairs that it is fair to presume that at some one or more points each radicle artery and vein stand in such a mutual relation that an increase in the diameter of the artery must result in an encroachment upon the lumen of the vein without entirely closing it. While this

drawing is from the mucous membrane of the sheep, the same arrangement, by careful study, will frequently be found in that of man (Fig. 4); but, owing to the very much more complex and irregular course of the vessels, it does not present such a striking and convincing illustration.

"There is such a complete anastomosis of the superficial veins with one another, with those of the skin at the edge of the nostrils, with the veins of the dura mater and of the orbit, that this obstruction to the venous return probably exerts its dilating tendency only or chiefly upon the

FIG. 4.



Nasal mucous membrane from septum of infant. *a*, perosteal layer. *r*, radicle vein. *g*, gland.

deep network of the erectile bodies. It does act, however, upon them as the supply and escape valve to the cavernous sinuses, and stands in the place of the muscles which compress the radicle veins of the penis and the clitoris."

Now this brings us to a point which is not sufficiently realized in nasal pathology. The nasal mucosa is a peculiar mucosa, differing essentially from all other mucosæ of the body in one very important particular. That is the presence immediately beneath it of bone structure in close relationship with its most important elements, the

bloodvessels and the glands. This is indicated at the level shown in the drawings by the periosteal layer. This relationship of the mucosa is still more peculiar in those thin lamellæ of bone, the turbinates, which are covered not on one side alone, but on both. I am obliged, however, to confess that I have not observed arterioles and veins in juxtaposition piercing these thin lamellæ through a common channel. As a rule they run parallel with these bony plates, and in the compression of the vein by the dilating artery, if they are a contributing part of the mechanism, they are non-elastic plates against which the compressible vein is apposed. This may be accomplished not only by the dilating artery, as I have hitherto urged, but by the contractile energy of the unstriped muscle fibres and the elastic fibres of the superimposed stroma. It is very probable indeed that compression of the glands also takes place and their contents are extruded by the same mechanism. Now this is the only mucosa in the body whose radicle bloodvessels are thus contained in dense unyielding channels, and the importance physiologically I have dwelt on in the extract I have just quoted. Not only must we bear this in mind when we consider the mechanism of the blood-supply of the mucosa, but it has an important bearing on our comprehension of various inflammatory processes. It doubtless is an important factor in the etiology of the unique lesion of atrophic rhinitis, and it probably is the cause of the frequency with which œdema supervenes in the chronic inflammation of the nasal mucous membrane, forming polypi or the so-called polypoid degenerations. We have œdematous polypi elsewhere, as for instance in the larynx, but the effusion of serum in growths elsewhere never reaches the degree observed in the nose. As for the lesion of atrophic rhinitis I quite agree with others that there are plausible reasons for believing that the essential lesion and the primary one in atrophic rhinitis is a bone lesion which interferes in some way with the radicle vessels which lie in bony canals, or are compressed in some way against bony plates.

(b) PAPILLARY ADENOMATOUS HYPERTROPHY OF THE MUCOUS
MEMBRANE OF THE SEPTUM.

A number of years ago considerable discussion was elicited through the publication, by Dr. Hopman, of a large number of cases of what he called nasal papilloma, which many of us believed to be merely papillary hypertrophy of the mucous membrane of the nose, usually situated upon the inferior turbinated bones at their posterior borders, where we have regularly a large amount of erectile cavernous tissue. In several publications¹ I took the latter view with Chiari and many others. I believe it will now be conceded that this latter view has prevailed in nasal

¹ New York Medical Journal, December 26, 1891; October 13, 1894; December 14, 1895.

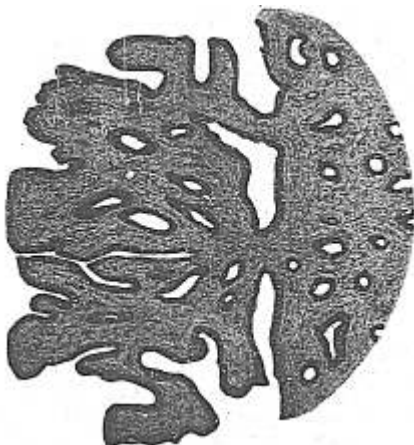
pathology. While these papillary hypertrophies are usually found in the situation I have mentioned above, the following case will illustrate that the same form of growth may occur under certain conditions else-

FIG. 5.



The reduplication of the surface epithelium in a papillary adenomatous hypertrophy of the mucous membrane of the septum. Photograph $\times 10$ (retouched).

FIG. 6.



The hyperplasia and reduplication of the glandular epithelium in a papillary adenomatous hypertrophy of the mucous membrane of the septum. Photograph $\times 10$ (retouched).

where. From the drawing (Figs. 5 and 6) made under low power it will be plainly seen that we have to deal with the reduplication of the surface and glandular epithelium of the septum. The method by which this takes place I have explained in a paper on "Papillary Oedematous Nasal Polypi and Their Relation to Adenomata."¹ I am indebted to the kindness of Dr. W. F. Dudley for this specimen and for the following history:

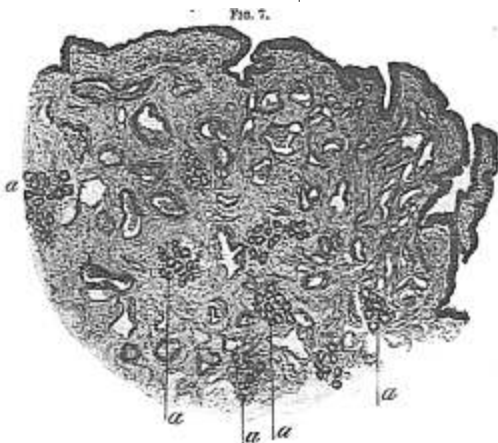
Man, aged thirty-five years. He had had nasal polypi removed from both sides of the nostril. Ten years ago he had an abscess of the frontal sinus, which ruptured spontaneously. A surgeon had enlarged the external opening and curetted the sinus. Since then he had been treated for nasal polypi in both sides of the nose, and also in the frontal sinus. This specimen, "a thickening," was removed from the right side of the nasal septum, anterior third, at the junction of the triangular cartilage with the vomer. The thickening was in contact with the floor of the nose. There was no pain, no glandular involvement, and but moderate bleeding. There was some thickening also of the septum projecting into the left nasal cavity. As frequently happens in these growths, there has been some recurrence since the operation.

Microscopic examination shows under low power a very corrugated surface lined by a thin layer of columnar epithelium, giving it to the naked eye the appearance frequently seen in papillomata; but there is no real increase in the number of epithelial layers. The stroma is loose and oedematous, filled with mononuclear and a few multinuclear leucocytes, and a moderate number of capillary bloodvessels only slightly dilated, some of the walls being thickened in their fibrous coat, and the endothelium being usually swollen. The epithelium under the high power seems to be columnar in character, and there are in the sections a number of rings of epithelium, separated from the surface in the substance of the growth, evidently the walls of the acini of the hyperplastic racemose glands, cut transversely or obliquely. Some of these communicate with the depressions of the corrugated surface. The growth, except for the small number of bloodvessels, is very similar on its surface to those which are common at the posterior end of the inferior turbinated bones. The corrugation of the surface is largely due to the dilatation of the ducts of the glands, but also, I believe, to the lateral division of the surface columnar epithelial cells. The whole growth is to be looked upon as an exceptional instance, in the situation in which it was found, of oedematous papillary hypertrophy of the mucous membrane, which is becoming adenomatous.

During the preparation of this paper two specimens on the same day in sequence have come under my observation which illustrate some further points in the interrelation of these growths. Fig. 7 illustrates an ordinary papillary oedematous hypertrophy of the posterior end of the inferior turbinated body, the so-called "mulberry hypertrophy." Taking note of the unusually striking appearance of the dilated cavernous sinuses in this specimen, you will also observe the reduplication,

¹ New York Medical Journal, November 13, 1897.

the corrugation, or papillary condition of the surface. Now I believe that this epithelial hyperplasia is the essential one, and not the fibrous digitations which form the framework of it. At *a* I have had indicated somewhat schematically the condition of the racemose glands in this tissue. You will observe that there is relatively little change in these, saving some round-celled infiltration around them, the glandular epithelium being practically unaltered, and the lumina of the acini not being especially dilated. We may conjecture that the greater amount of fibrous tissue and the engorgement of the venous sinuses has by mechanical compression had something to do with the prevention of hyper-



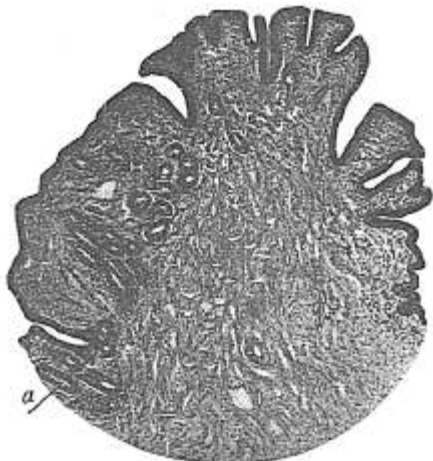
The structure of the posterior end of the inferior turbinated body, showing the hyperplasia of the surface epithelium and the dilatation of the venous sinuses. The glands are unaffected, but are here much exaggerated in size to show their presence. Camera lucida $\times 10$.

plastic changes in the glands at this point in this hypertrophy. This is not always the case in this locality, for, as you will see in some of the lantern slides I will exhibit, this glandular hyperplasia is present in other specimens from this locality where the sinuses are not so prominent, but the point is still better illustrated in the other specimen referred to above, which is a papillary oedematous hypertrophy of the posterior end of the *middle* turbinal. Here, in this case, we have no venous sinuses at all, and you may observe in Fig. 8 the involvement of the glandular epithelium as well as that of the surface. This is an unaltered camera lucida drawing, which sufficiently illustrates the

point. In the former specimen we have the papillary condition of the surface only, in the latter the papillary condition of the surface *and* the adenomatous hyperplasia.

These growths are rather uncommon in the nose at a stage of exclusive adenomatous hyperplasia, but are thus much more frequently found in the rectum, the uterus and its adnexa, and in the bladder. In the sections which I exhibit (see Figs. 5 and 6) in connection with this septum case I think you will be able to note the relationship not only of

FIG. 8.



The structure of the papillary adenomatous hypertrophy of the posterior end of the middle turbinate body, showing the involvement of the glands. At *a* is seen the dilatation of a glandular duct helping to make the papillary surface. Camera lucida $\times 10$.

the ordinary hypertrophies of the posterior ends of the turbinate to this growth, which borders on the class of adenomata, but you will see from the sections that we also have the marked œdema of the stroma, which is the only characteristic of the ordinary nasal polyp. Were it not for this lateral cleavage in the columnar epithelial cell leading to reduplications and inversions of the surface and glandular epithelium, we would call the hyperplasia by the clinical term polypoid. In studying these growths we must remember that embryologically the racemose glands of the mucosa are normally nothing but the inversions of the

surface epithelium, and we conceive of these adenomata as being nothing but the morbid activity of the cells excited by some stimulus, which we have every reason to believe is usually a chronic inflammation. Now, a very interesting and a very mysterious phenomenon is the frequency with which what you here perceive is essentially a benign growth becomes a malignant adenoma. When in these adenomatous growths you find areas in which the cells are multiplying not alone in such a manner as to form tortuous loops of epithelium of one or two layers, but so that there are many layers which intervene between the lumina of the false acini or loops of columnar cells and the stroma, we may suspect that the tumor is putting on a malignancy which, however frequent the recurrence may have been, has hitherto been absent. Hitherto we have had to do with a surface hyperplasia. When malignancy commences a deep destructive infiltration begins which we know will eventually develop into all the clinical and morphological characters of cancer.

It is a very plausible assumption and an entirely possible explanation to say that these benign hyperplasias of epithelium furnish the proper soil and a nidus for the specific contagium of cancer, and that when this tissue becomes the abiding place for it, then the infiltration begins. However attractive this theory may be, it lacks all the necessary elements of scientific demonstration. There is even not enough accumulation of circumstantial evidence to render the theory anything more than a suggestive possibility. This is not the place to enter into a discussion of the germ theory of cancer. Recent investigation has fully demonstrated the unsatisfactory character of the evidence thus far presented, but we must remember that nothing has thus far been advanced to demolish the theory. It seems probable that we must await the development of higher resolving powers for our microscopes and for more sensitive chemical reagents, but we should also keep our minds in a more receptive condition as to the possibility of the independent existence of simpler entities than the animal cell. That is no longer a microcosm. It is a macrocosm. For a long time various morphological phenomena within the cell have been studied under the high powers of the microscope, and recently the astounding facts which have been elicited in the laboratory study of immunity have excited the minds of investigators to such an extent that already theories have been advanced to explain them, which future fuller knowledge is very likely to demonstrate as erroneous, or at least as premature. These are the chemico-biological aspects of the problem of intracellular life which are apt to be proven hereafter to have a decided relationship to the etiology of cancer.

(c) A CYST IN THE LYMPHOID TISSUE OF THE PHARYNX.

From time to time, for many years, I have been much interested in certain forms of cystic growths found in the nose and throat.¹ The retention cysts which form in the racemose glands are common enough² and well enough understood to deprive them of any special interest when found. Only less so are the so-called inclusion cysts, such as we meet with in the pharyngeal vault, called by Tornwaldt the pharyngeal bursa, being merely the space included by the agglutination of two contiguous folds of the mucous membrane. I have also met with this formation along the lateral walls of the pharynx.³ It occasionally happens—at least I have once observed it—in the posterior ends of the inferior turbinated bodies when enormously hypertrophied, that the dilatation of one of the cavernous sinuses assumes the size of a cyst filled with blood. Besides this, the cysts forming in nasal polypi are not always due to the dilatation of glands which may be contained in the pendent tissue, but in rapidly forming polypi, and especially in those exceptional cases where the patient is younger than sixteen or seventeen years, are found cysts formed by the breaking down of the scanty stroma and the more abundant coagulated fibrin which goes to make up the framework of the polyp. Elsewhere I have drawn attention to this method of cyst formation as being allied to the formation of blebs by the effusion of serum just beneath the epithelium, this being frequently of neurotic origin.⁴ But there is another form of cyst which is very rarely met with and always, of course, in the pharynx, and that is one formed *within* the structure of the lymphoid tissue. It results apparently from the dilatation of one or more of the lymph spaces through some cause which I cannot fully understand, as it would seem that impediment to the lymphatic circulation could hardly be so localized as to cause dilatation of the channels behind it. Whatever may be the cause, however, it is a fact that these cysts are occasionally met with. In the drawing Fig. 9, herewith produced from a section of a specimen kindly furnished me by Dr. Berens, this is especially well seen. It came from the glosso-epiglottic fossa. Apparently several contiguous microscopic lymph nodes embedded in the loose connective tissue were the seat of this method of cyst formation. In the drawing, at the larger end, may be seen a lymph node of which almost the entire calibre is taken up by the dilated lymph space, there being merely a rim of lymphoid tissue around the cavity. At the small end may be

¹ A Cyst of the Pharyngeal Bursa. Medical News, September 7, 1889.

² Some Remarks on the Structure of Oedematous Nasal Polypi. New York Medical Journal, November 4, 1893.

³ A Cyst of the Nasopharynx and a Cyst of the Oropharynx. New York Medical Journal, 1895.

⁴ Remarks on the Etiology of Nasal Polypi. Laryngoscope, 1899.

seen the beginning of another cyst which is forming in this manner, the encircling rim of the lymphoid tissue in this last case being relatively much larger than that of the cavity at the larger end. The case had no especially marked clinical history, except that of slight irritation of the throat.

There is some tendency to confound these rare cysts with the equally rare cases of abscess of the lymphoid tissue, and these two again with the retention plugs found in the lacunæ of the tonsil which have been sealed over in the process of inflammation. In the cases of true abscess,

FIG. 9.



Showing at the larger end of the drawing a lymph node whose area is almost completely occupied by a cavity lined neither by epithelial nor endothelial cells, but connected directly with the lymphoid tissue, while at the smaller end a similar cavity is observed with a thicker rim of lymphoid tissue. Photograph $\times 10$ (retouched).

zones of inflammation and colonies of cocci, presumably pathogenic, may be found in the neighboring lymphoid tissue which has not yet broken down into an abscess cavity. In the retention cysts of the lacunæ we find either a complete coating of epithelium on the walls or a plainly recognizable remnant of it. In this specimen neither of these conditions are present and we have, I believe, a true lymphatic cyst.

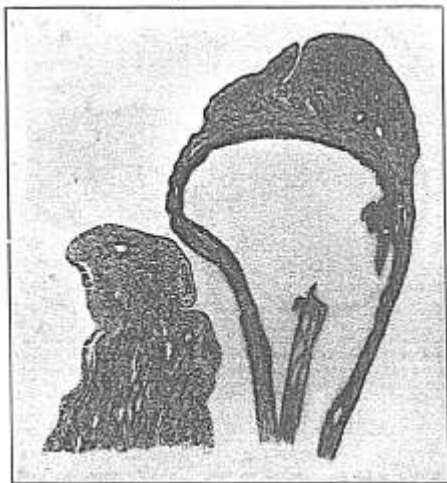
(d) EFFUSION OF SERUM INTO THE NASAL MUCOSA IN CORYZA.

Besides the cases of dilated spaces within morbid growths which I have mentioned and which are properly designated as cysts, we have in acute coryza, especially when affecting the already œdematous mucosa of the nose, a dilatation of the lymph spaces due to the sudden and excessive exudation of serum from the bloodvessels into the stroma weakened in the processes of chronic inflammation. This is illustrated in the drawing Fig. 10, taken from a section of the mucosa of a middle

turbinated body removed during the period of a coryza when the nasal passages are most completely occluded.

In a mucosa not too much altered by chronic inflammation there is still contractile power enough in the unstriped muscle fibres and in the elastic fibres of the stroma to temporarily drive out the blood during the attack from time to time, and, finally, on the subsidence of the

FIG. 10.



The dilatation of a lymph space or the separation of the fibres of the stroma of the nasal mucosa by the effusion of serum during the congestive stage of a severe coryza. Dimensions: 6 x 3 mm. Camera lucida $\times 10$.

coryza to permanently squeeze out or cause the absorption of the serum. In a mucosa badly damaged as to the contractile energy of these elastic and muscle fibres, this ability of the mucosa to regain its normal volume temporarily and permanently is weakened, or has entirely disappeared in exact proportion to the amount of damage done by the previous long-standing chronic inflammation.